

006477 USA/CPS/IBSS/HM
Application No: 10/797,288
Page 2 of 17

IN THE CLAIMS:

Please substitute the following listing of claims for the previous listing of claims:

1. (Currently amended) A self-cleaning gas distributor capable of distributing a process gas across surfaces in a substrate processing chamber, the gas distributor comprising:

(a) a hub comprising a gas inlet to receive a process gas and a gas outlet comprising first and second terminus to expel the received process gas;

(b) a baffle extending radially outward from the hub, the baffle having opposing first and second surfaces and comprising an outer perimeter;

(c) a plurality of first vanes on the first surface of the baffle, the plurality of first vanes configured to direct the process gas expelled from the first terminus across a chamber surface, each first vane comprising an arcuate plate that curves outward from the hub to the outer perimeter of the baffle; and

(d) a plurality of second vanes on the second surface of the baffle, the plurality of second vanes configured to direct the process gas expelled from the second terminus across the second surface of the baffle to clean the gas distributor[:]

~~whereby the first vanes direct the received gas across a chamber surface and the second vanes direct the received gas across the second surface of the baffle.~~

2. (Canceled)

3. (Currently amended) A gas distributor according to claim [[2]] 1 wherein each arcuate plate tapers from the hub to the outer perimeter of the baffle.

4. (Original) A gas distributor according to claim 1 wherein the hub comprises first and second channels, and the gas outlet comprises the terminus of the first channels and the terminus of the second channels.

006477 USA/CPS/IBSS/HM
Application No: 10/797,286
Page 3 of 17

5. (Original) A gas distributor according to claim 4 wherein the second vanes comprise a plurality of surfaces that are inclined to the second surface of the baffle, at least a portion of the inclined surfaces being below the terminus of the second channels.

6. (Original) A gas distributor according to claim 1 wherein the second vanes comprise pairs of inclined surfaces that are oriented to direct the gas across a sector of the second surface of the baffle.

7. (Original) A gas distributor according to claim 1 wherein the second vanes comprise a plurality of wedges.

8. (Original) A gas distributor according to claim 1 wherein the second vanes comprise surfaces inclined to the second surface of the baffle at an angle of about 5 degrees to about 60 degrees.

9. (Original) A gas distributor according to claim 1 wherein the hub comprises a gas feed-through tube capable of allowing a process gas to bypass the first and second vanes and enter the chamber.

10. (Original) A combination process and cleaning gas distributor comprising the gas distributor according to claim 1 to distribute a cleaning gas, and a process gas distributor having a process gas inlet and a showerhead gas distribution faceplate.

006477 USA/CPS/IBSS/HM
Application No: 10/797,286
Page 4 of 17

11. (Currently amended) A self-cleaning gas distributor to distribute a process gas from an external source across surfaces in a substrate processing chamber having a wall with a cavity, the gas distributor comprising:

(a) a hub that fits into the cavity in the wall of the chamber, the hub comprising (i) a plurality of first channels on an external surface of the hub that mates with the cavity, ~~the~~ each first channel[[s]] comprising an opening[[s]] and a first terminus, the opening[[s]] capable of receiving the process gas from the external source; (ii) a plurality of second channels, each second channel capable of receiving the process gas from the first terminus of the first channels and expelling the process gas from a second terminus; and (iii) a gas feed-through tube;

(b) a baffle plate extending radially outward from the hub, the baffle plate comprising [[a]] first and second surfaces, an outer perimeter, and an aperture capable of allowing passage of the process gas along the second channels;

(c) a plurality of first vanes on the first surface of the baffle plate, the plurality of first vanes configured to direct the process gas expelled from the first terminus across the surfaces of the chamber, each first vane comprising an arcuate plate that curves outward from the hub;

(d) a plurality of second vanes on the second surface of the baffle plate, the plurality of second vanes configured to direct the process gas expelled from the second terminus across the second surface of the baffle plate to clean the gas distributor, each second vane comprising a surface inclined to the second surface of the baffle plate;

~~wherein the first vanes direct the gas across the surfaces of the chamber, the second vanes direct the gas across the second surface of the baffle plate, and the gas feed-through tube allows the gas to bypass the first and second set of vanes.~~

12. (Original) A gas distributor according to claim 11 wherein each arcuate plate tapers from the hub to the baffle plate outer perimeter.

13. (Original) A gas distributor according to claim 11 wherein at least a portion of the inclined surfaces are below the aperture.

14. (Currently amended) A gas distributor according to claim 44 13 wherein the adjacent pairs of inclined surfaces are oriented to direct the gas across a sector of the second surface of the baffle plate.

15. (Currently amended) A substrate processing apparatus comprising:
(a) a remote chamber to activate a process gas;
(b) a process chamber comprising chamber walls, interior chamber surfaces, a substrate support, a self-cleaning gas distributor, and a gas exhaust, the gas distributor being capable of receiving the process gas from the remote chamber and distributing the process gas ~~(i)~~ into the process chamber, ~~(ii)~~ along the chamber walls and interior chamber surfaces, and ~~(iii)~~ about the gas distributor, the gas distributor comprising:

(i) a hub comprising a gas inlet to receive the process gas, a gas outlet comprising first and second terminus to expel the received process gas, and a gas feed-through tube;

(ii) a baffle extending radially outward from the hub, the baffle having a opposing first and second surfaces and comprising an outer perimeter;

(iii) a plurality of first vanes on the first surface of the baffle, the plurality of first vanes configured to direct the process gas expelled from the first terminus across the enclosing walls and interior chamber surfaces, each first vane comprising an arcuate plate that curves outward from the hub to the outer perimeter of the baffle; and

(iv) a plurality of second vanes on the second surface of the baffle, the plurality of second vanes configured to direct the process gas expelled from the second terminus across the second surface of the baffle to clean the gas distributor;

wherein ~~the first vanes direct the gas across the enclosing walls and interior chamber surfaces, the second vanes direct gas across the second surface of the baffle, and the gas feed-through tube allows a gas to bypass the first and second vanes.~~

006477 USA/CPS/IBSS/HM
Application No: 10/797,286
Page 6 of 17

16. (Original) A substrate processing apparatus according to claim 15 wherein the remote chamber comprises a gas inlet, gas activator, and a gas outlet.

17. (Original) A substrate processing apparatus according to claim 15 wherein the first vanes are capable of distributing an energized cleaning gas from the remote chamber along the chamber walls and interior chamber surfaces.

18. (Original) A substrate processing apparatus according to claim 15 wherein the second vanes are capable of distributing an energized cleaning gas from the remote chamber about the gas distributor.

19. (Original) A substrate processing apparatus according to claim 15 wherein the gas feed-through tube is capable of distributing an energized process gas from the remote chamber into the process chamber.

20-21. (Canceled)